SONY

3-751-126-21 (1)

Stereo Cassette Deck

Operating Instructions

TC-K950ES

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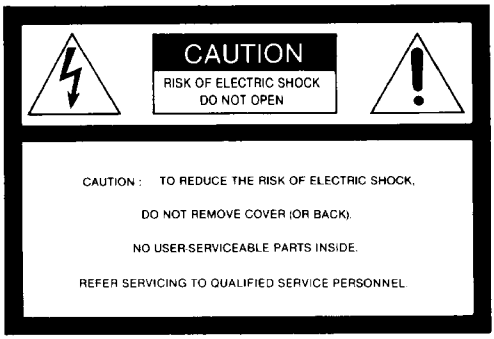
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

*The graphical symbols are on the rear enclosure.

INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna
Relocate the equipment with respect to the receiver
Move the equipment away from the receiver
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Owner's Record

The model and serial numbers are located at the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. TC-K950ES Serial No._____

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Features

The TC-K950ES is a cassette deck equipped with a laseramorphous magnetic alloy head using LC-OFC winding for playback, and features the following functions.

- **Professional-level deck design** for high mechanical stability and maximum performance.
- **3-head system (separate record, playback and erase heads)** allows you to instantly check the recorded sound while recording is in progress.
- **Bias and recording level calibration** ensures optimum recording conditions to bring out the best in every tape.
- **The Dolby HX PRO* system** improves the linearity of the tape's high-range response during recording.
- **Easy-to-read digital linear counter** shows the elapsed recording or playing time.
- **The AMS function** provides easy access to a desired selection.

* Dolby noise reduction and HX PRO headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX PRO originated by Bang & Olufsen.

* "Dolby", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Precautions

On safety

- Operate the unit only on 120 V AC, 60Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it will not be used for a long time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

On operation

- When the unit is not used, turn the power off to conserve energy and to extend the useful life of your unit.

On head cleaning

The head and tape path should be cleaned after every 10 hours of operation. Dirty heads and a dirty tape path may cause:
—loss of high-frequency response
—loss of sound volume
—sound drop-out

Note on cassettes longer than 90 minutes

The use of cassettes longer than 90 minutes is not recommended except for long continuous playback.

If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

Installation

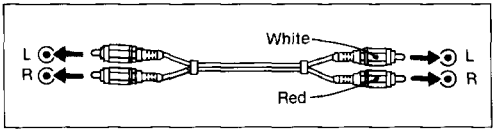
Notes on installation

- Place the unit in a location with adequate air circulation to prevent internal heat build-up in the unit.
- Do not place the unit on a soft surface, such as a rug, that would block the ventilation holes on the bottom.
- Install the unit with the front panel facing toward you.
- Do not install the unit:
  - —near heat sources such as radiators or air ducts.
  - —in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
  - —in an inclined position.

Connections

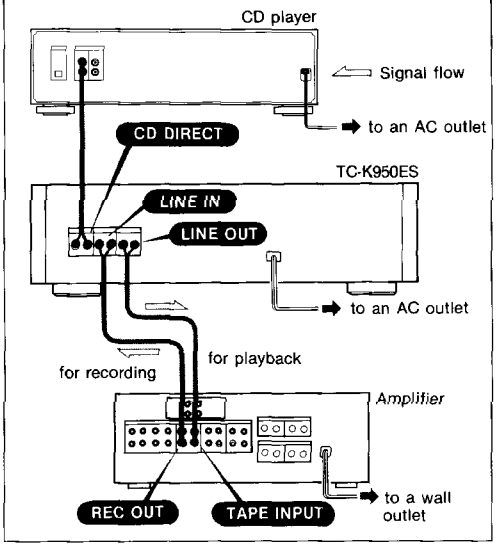
Notes on Connections

- Turn off the power to all equipment before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.
- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pickup.

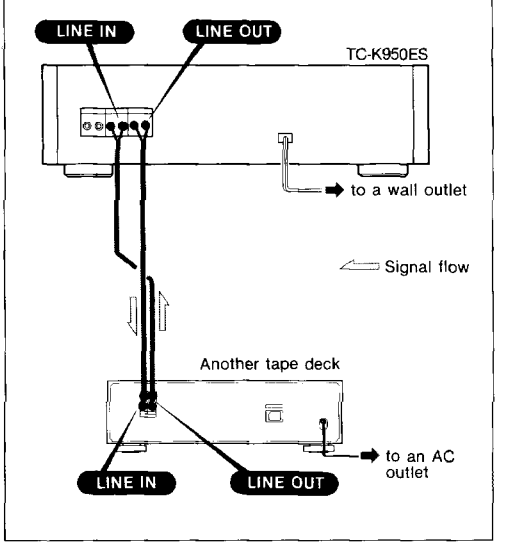


- Connecting a CD player or a DAT deck to the CD DIRECT input terminal allows the sound signal of the connected unit to be directly input to the unit. Since this shortens the signal path, the result is higher sound quality. However, due to the shortened signal path, the BALANCE switch and MPX filter are rendered inoperative during input from the CD direct input terminal. If your CD player is equipped with two sets of output terminals, connect one set to the amplifier and the other to the CD direct input terminal of this unit. You may then use the INPUT switch to switch between CD direct input or line input to suit your recording needs.

Basic Connection

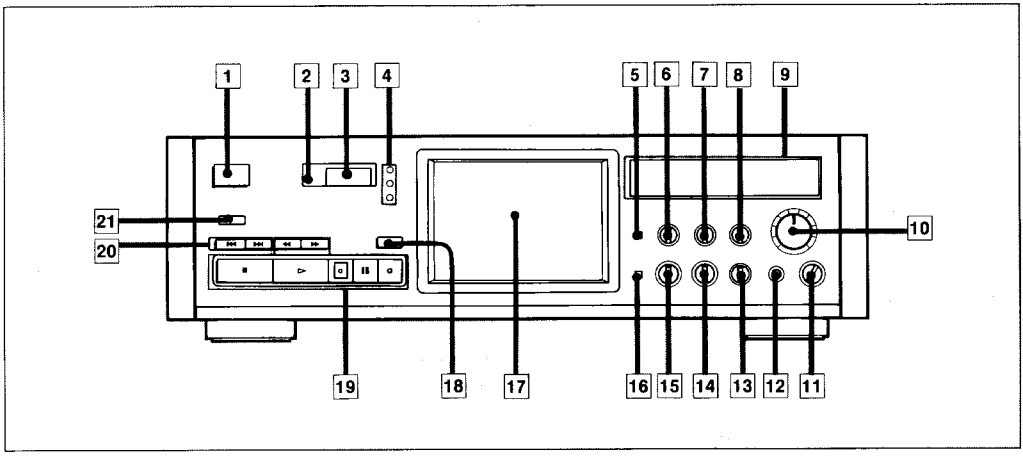


Connection for Tape Dubbing



Identification of Front Panel Parts

For details, refer to the pages indicated in ●.



1 POWER switch

2 Remote sensor
You can remotely control this cassette deck with:
— A remote commander that has an ■ mark and comes with a Sony amplifier or receiver and which can be used to control a cassette deck.
— An optional Sony remote commander that has an ■ mark.

3 LINEAR COUNTER

4 RESET button ❽ ❾
MEMORY button ❽
DISPLAY MODE button ❻

5 DOLBY HX PRO button ❾ ⓫

6 DOLBY NR (noise reduction)/MPX FILTER switch ❻ ❾

7 MONITOR switch ⓫

8 INPUT switch ❾

9 PEAK PROGRAM METER

10 REC (recording) LEVEL control ❾ ⓬

11 PHONE (headphones)LEVEL control

12 HEADPHONES jack (stereo phone jack)

13 REC EQ CAL (recording equalizing calibration) switch (LOW, NORMAL, HIGH)

14 REC (recording) LEVEL control for calibration ⓫

15 BIAS (bias adjust) control ⓫ ⓬ ⓭

16 CALIBRATION button ⓬ ⓭

17 Cassette holder

18 ≙ OPEN/CLOSE button

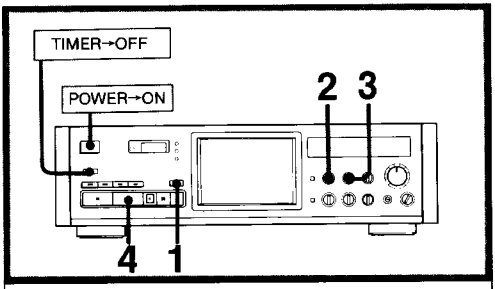
19 Tape operation buttons and indicators
◀◀ (rewind) button
■ (stop) button
▶ (play) button and indicator
▶▶ (fast-forward) button
● REC (record) button and indicator
❚❚ PAUSE button and indicator
○ REC MUTE (record muting) button ⓫

20 AMS (Automatic Music Sensor) buttons ❼

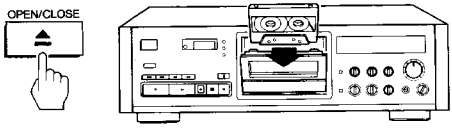
21 Timer switch ❻ ❾ ⓮

Playing back a Tape

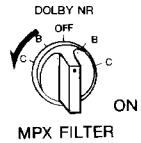
Set the amplifier's function to tape monitor.



1 Insert the cassette with the side to be played facing outward.



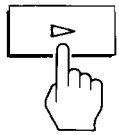
2 Select the Dolby NR system.



MPX FILTER

3 Select tape monitor

4 Start playback



To stop playback	Press ■.
To stop for a moment during play	Press ❚❚. To restart playback, press ❚❚ or ▶.
To advance the tape	Press ▶▶.
To rewind the tape	Press ◀◀.

How to use DOLBY NR switch
Set the DOLBY NR switch to the same position (B, C, or OFF) as was used when recording the cassette.

Use the DISPLAY MODE button to select the display mode
You may choose among three display modes by pressing the DISPLAY MODE button: (1) all indications are displayed; (2) only the linear counter is displayed; or (3)no display.

What is Dolby NR system?
The Dolby NR (noise reduction) system reduces tape hiss in low-level, high-frequency signals. The system boosts these signals in recording and lowers them in playback.

Is it necessary to set a switch for the tape type being used?
No. Because an automatic tape type detection system is used. This system adjusts the equalization and bias current setting to the optimum levels according to the type of cassette detected, NORMAL (TYPE I), CrO_2 (TYPE II), or METAL (TYPE IV). When the cassette is inserted, the corresponding tape type will be displayed.

The TIMER switch must be set to OFF because...
Otherwise, when the power is turned on, recording or playback will start automatically in a few seconds.

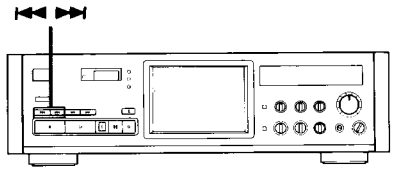
To change to recording mode during playback
Keeping ▶ pressed, press ●. The unit immediately switches from playback to recording without stopping the tape. This is useful when editing previously recorded material.

For headphone listening
Connect the headphone plug to the PHONES jack. Listening level can be controlled with the PHONE LEVEL control.

To start operations while the cassette holder is open
Operations may be started while the cassette holder is open. For example, when ▶ is pressed while the cassette holder is open, the cassette holder will close and playback will start. Similarly, pressing ◀◀ ▶▶, |◀◀ ▶▶|,or ❚❚ while the cassette holder is open will close the cassette holder and start the respective operation.

Note
The Dolby HX PRO System is effective only during recording, and not during playback.

Locating the Beginning of a Selection during Playback
—Automatic Music Sensor (AMS)



To locate the beginning of the next selection:

To locate the beginning of the selection being played:

The indicator on the ▶ button starts flashing, and playback starts when the unit locates the beginning of the selection.

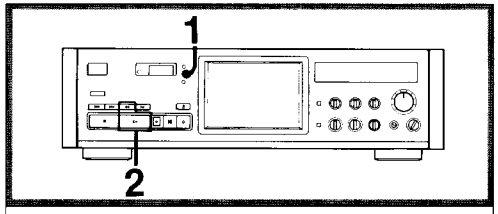
What is the AMS?
The AMS detects the blank space between selections and locates the beginning of a selection during playback. To assure correct operation of this function, there must be a blank of 4 seconds or longer between selections. Use the record muting function to insert a blank space when recording.

If the ▶▶| or |◀◀ button is pressed immediately before the following selection
The AMS may skip the next selection and locate the beginning of the one which follows it.

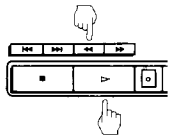
The AMS may not operate
- If there is noise in the space between selections.
- If the space is less than 4 seconds long.

The AMS will treat the following as blanks:
- a long pause in the music
- a passage of low frequencies or very low volume
- a gradual increase or decrease in volume

Playing Back Automatically After Fast Winding—Auto Play



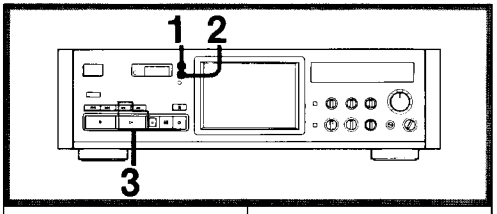
1 1.24 — If MEMORY is displayed, press the MEMORY button to turn it off.

2 

While holding down ◀◀, press ▶.

After the tape is completely rewound, the unit will automatically start playback.

Locating a Desired Position Using the Counter—Memory Play

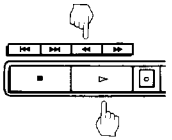


1 At the desired point.

RESET

2 MEMORY

The desired point is memorized.

3 

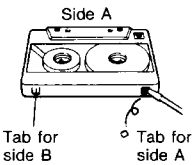
To return to the desired point:

While holding down ◀◀, press ▶.

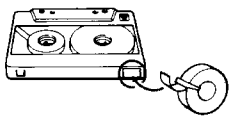
The tape is rewound to 0.00 and playback starts. If you press only the ◀◀ button, the tape will be rewound and the unit will stop at 0.00(Memory stop).

Notes on Cassettes

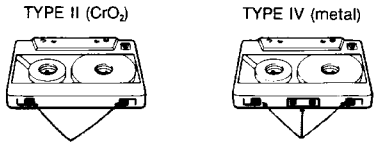
To protect a recording on side A or B
Break out the respective tab.



To recover a cassette for recording
Cover the respective slot with tape.



When using TYPE II (CrO_2) or TYPE IV (metal) cassettes
Be careful not to cover the detector slots which are necessary for automatic tape type detection.

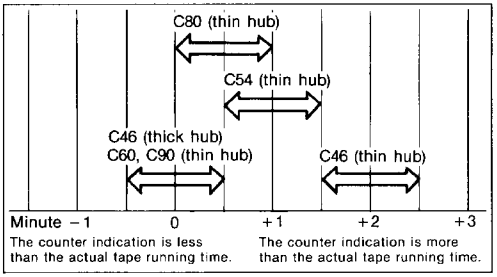


Cassette care

- Avoid touching the tape surface of a cassette, as any dirt or dust will contaminate the heads.
- Keep cassettes away from equipment with magnets, such as speakers and amplifiers, as erasure or distortion on the recorded tape could occur.
- Do not expose cassettes to direct sunlight, extremely cold temperatures or moisture.

The accuracy of the counter

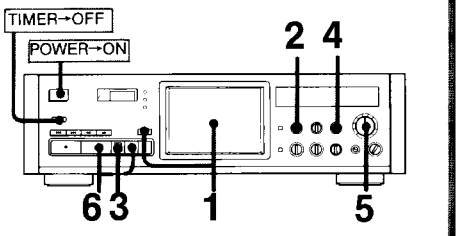
This counter is not a digital clock, and thus the indicated number will not exactly equal the actual elapsed time. The difference between the number and the elapsed time will vary depending on the type of tape being used. This counter has been designed using only cassette tapes as a standard.



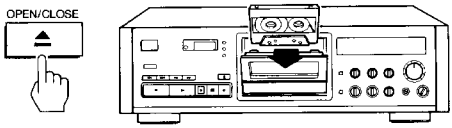
Note on memory play/stop
In actuality, the tape is rewound to slightly short of 0.00.

Note on the counter
If necessary, check the accuracy of the counter when using cassette tapes other than Sony's or tapes of a special length.

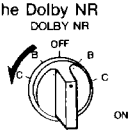
Do not turn off the power while using the counter
Turning the power off and then on again resets the counter to 0.00.



1 Insert the cassette with the side to be recorded facing outward.

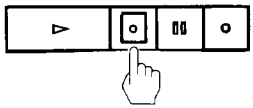


2 Select the Dolby NR system.



Set to MPX FILTER when recording FM broadcasts with Dolby NR.

3



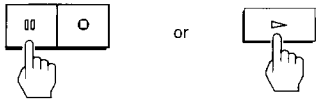
The unit will enter recording pause mode.

4 Play the program source to be recorded.
To record the CD program source through the CD DIRECT input terminal, set INPUT to CD DIRECT.

5

Adjust the recording level (see page 10).

6 To start recording,



To stop recording, press ■.

Using the HX PRO button
Through the use of the HX PRO button, you can turn the Dolby HX PRO function on or off as you like. Use the MONITOR switch to compare the effects of the function.

Regarding CD direct input
Connecting a CD player directly to the CD DIRECT terminals will result in a higher quality recording. However, when the INPUT switch is set to CD DIRECT, the MPX filter are rendered inoperative.

If playback starts instead of recording
The cassette tab has been removed. To record on this cassette, cover the hole with plastic tape. (See page 8.)

The TIMER switch must be set to OFF because...
Otherwise, when the power is turned on, recording or playback will start automatically in a few seconds.

To start recording while the cassette holder is open
If you press the REC ● button while the cassette holder is open, the holder will close automatically and the unit will switch to recording standby mode. This function allows you to start recording at a moment's notice.

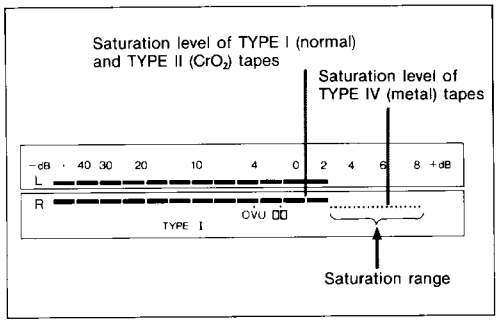
How to check the total recording time of a tape
1 Press the RESET button at the beginning of a tape to reset the counter to 0.00.
2 Press ▶▶ to fast forward the tape to the end. The number on the counter shows the approximate recording time.

To check the approximate remaining recording time on the tape
1 Press the RESET button to reset the counter to 0.00.
2 Advance the tape to its end using ▶▶.
The number on the counter shows the approximate time remaining on the tape.

When recording FM broadcasts with Dolby NR
Set the MPX FILTER switch to ON (the "FILTER" indicator will be displayed) when you record FM broadcasts with Dolby NR. If the switch is set to ON, the MPX filter activates to cut off any remnants of the 19kHz stereo carrier and 38kHz subcarrier signals, which may otherwise interfere with proper operation of the Dolby noise reduction.
However, setting this switch to ON is not a must because almost all high-performance tuners incorporate such filters which adequately remove those signal components from the output.
So, set the switch to ON only if the tuner is not equipped with this filter or the equipped filter is insufficient (if you notice sound degradation when recording with Dolby NR).

Adusting the Recording Level

Adjust the REC LEVEL control so that the highest signal levels will cause the meter segments just before the red line (saturation range) to light up.
The saturation level differs according to tape types. When a cassette is inserted, segments of red indicators will light up to show the saturation range for the tape type inserted.


Saturation level of TYPE I (normal) and TYPE II (CrO_2) tapes
Saturation level of TYPE IV (metal) tapes
-dB · 40 30 20 10 4 0 2 4 6 8 +dB
L
R
OVU
TYPE I
Saturation range

Tips on recording level adjustment

- Adjust the recording level as high as possible without causing distortion in the recorded sound.
  If the recording level setting is too high (exceeding the saturation level), the recording will be distorted; if it is too low, the tape will produce a hissing sound.
- If the program source to be recorded has many high-frequency signals, as in the case of digital sources such as compact discs and PCM, set the level to a relatively low position.

Monitoring the Recorded Sound

As this unit has three separate heads for recording, playback and erasure, you can check the quality of a recorded sound by comparing it with the input signal of a program source.
While recording, use the MONITOR switch to check that there is no distortion due to excessive level settings or sound degradation due to head contamination.

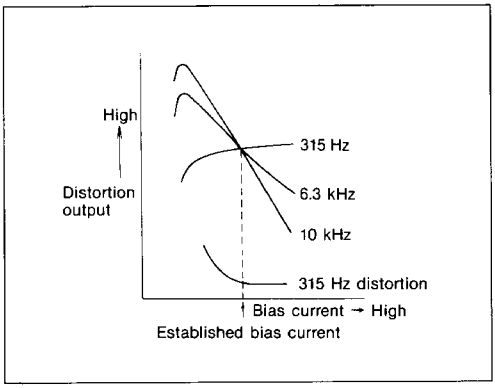
How to use the MONITOR switch
To listen to the input signal before recording, set MONITOR to SOURCE.
To listen to the recorded sound from the tape, set MONITOR to TAPE.

MONITOR switch setting and signal flow

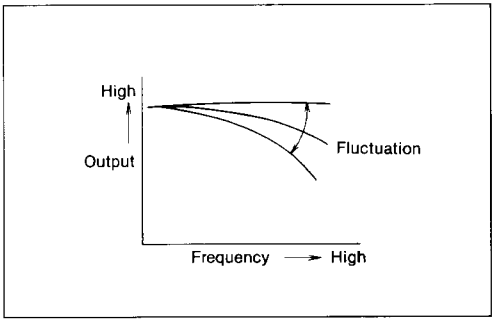
MONITOR switch setting	Signal flow
SOURCE (SOURCE / TAPE)	Band; REC LEVEL; Recording head; SOURCE; MONITOR; TAPE; Playback head; LINE IN (CD DIRECT IN); LINE OUT; HEADPHONES. The signal to be recorded can be monitored.
TAPE (SOURCE / TAPE)	Band; REC LEVEL; Recording head; SOURCE; MONITOR; TAPE; Playback head; LINE IN (CD DIRECT IN); LINE OUT; HEADPHONES. The recorded signal can be monitored.

What is the Dolby HX PRO System?

The Dolby HX PRO system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.



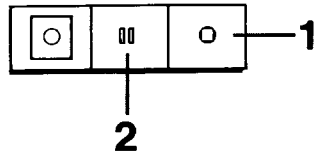
As shown above, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current. In conventional systems, the bias current is susceptible to variations in certain recording signals (see diagram below) which can cause fluctuations in frequency response, distortion, or other unwanted characteristics.



With the Dolby HX PRO system, the effective bias amount added to the bias current is controlled in millisecond units to greatly reduced distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

Inserting a Blank Space during Recording—Record Muting

Using the O button during recording, you can insert a blank space on a tape to help you locate the selection later (for details on the AMS function, see page 7). In addition, this function enables you to eliminate unwanted input by replacing it with a blank space.



1 While recording, press O.
If you want the blank to be four seconds long, press O.
The ● indicator starts to flicker. While the indicator is flickering, no incoming signals are recorded on the tape. Then, after four seconds, the ❚❚ indicator lights up and the unit enters recording pause mode.

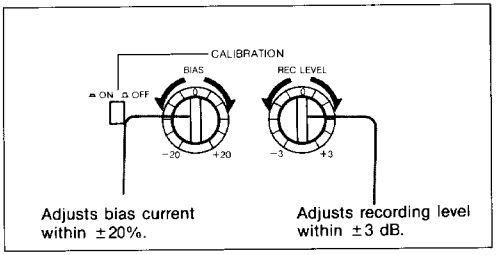
2 Press ❚❚ to resume recording.

If you want the blank to be longer than four seconds
Keep the O button pressed for as long as you want. After four seconds, the flickering speed of the ● indicator will increase. When you release the O button, the ❚❚ indicator lights up and the unit enters the pause mode.

Making an Optimum Recording According to the Tape Type

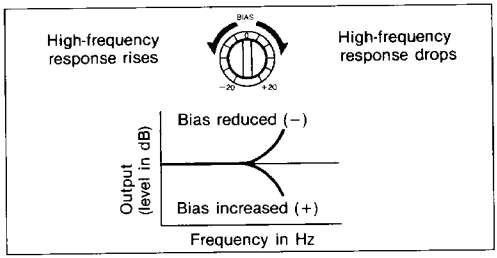
Bias and Recording Level Calibration

There are many different types of cassettes on the market, each with varying magnetic properties. Although your unit is equipped with the ATS (Automatic Tape Selection) system which sets the appropriate equalization characteristics and bias current for each tape type, an additional calibration adjustment can often produce even better results. Use the bias current and recording level calibration function to obtain the optimum recording conditions that will bring out the best in every tape.



Bias calibration

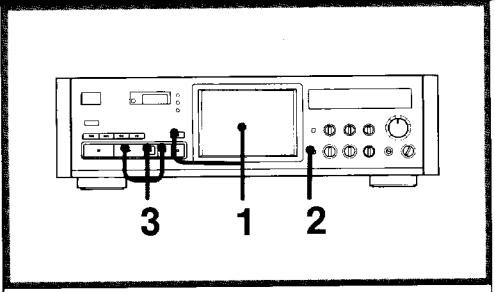
Choosing the optimum bias current for a tape ensures minimum distortion and flat frequency response. Lowering the bias current boosts high-frequency response, but also results in higher distortion. Raising the bias, on the other hand, reduces distortion, but also dampens high-frequency response. Optimum bias is thus obtained when the bias current and high-frequency response are well balanced.



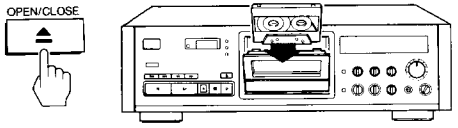
- If the bias current is higher or lower than the optimum setting for a certain tape, the frequency response changes as shown in the chart above. Changing the bias can thus be used to tailor the response to your liking, for example by slightly emphasizing the upper or lower end.
- The frequency response of metal tapes is much less affected by changes in the bias current than other tape types. With some tapes, the adjustment range of this deck (±20%) may therefore not be sufficient to cover every possible requirement.

Recording level calibration

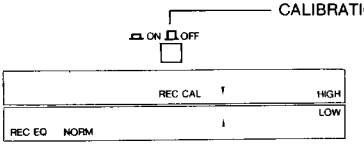
Even when the recording level is adjusted correctly, using a tape with low sensitivity will result in a low playback level. The REC LEVEL calibration control allows you to compensate for sensitivity differences among tapes to equalize both recording and playback levels. This is especially important when using the Dolby NR system, since it is most effective when recording and playback levels are the same.



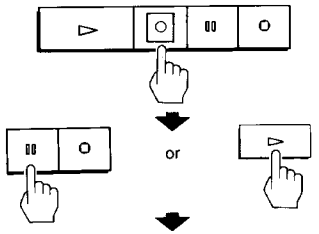
1 Insert the cassette to be used for recording.



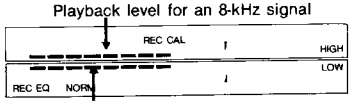
2 Press the CALIBRATION button.



3 Activate the recording test tones:



Playback level for an 8-kHz signal

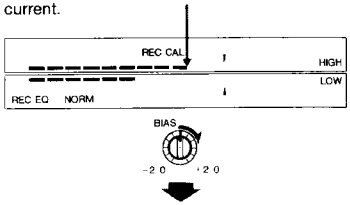


Playback level for a 400-Hz signal

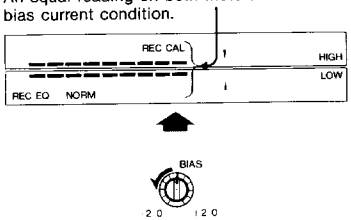
It takes 2 to 3 seconds to stabilize the level of test tones.

4 Adjust the bias control until both meters indicate equal playback levels.

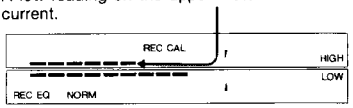
A high reading on the upper meter indicates a low bias current.



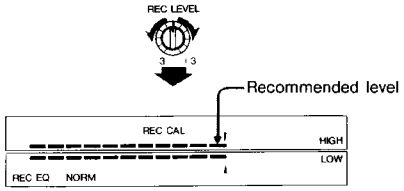
An equal reading on both meters indicates the optimum bias current condition.



A low reading on the upper meter indicates a high bias current.



5 Adjust the REC LEVEL calibration control until both meters reach the recommended level (REC CAL)



The bias current is now adjusted to the optimum level and the tape sensitivity compensation has been set. Press ■, then set the CALIBRATION button to OFF. Rewind the tape and start the actual recording.

Note

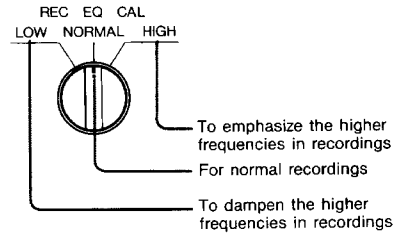
- The sound cannot be monitored during the calibration operation.

Recording Equalization Calibration

Although bias current and equalization are automatically set by the Automatic Tape Selection (ATS) function for the tape being used, you can use the REC EQ CAL switch to change the recording characteristics according to the nature of the source material or to compensate for the particular characteristics of the tape.

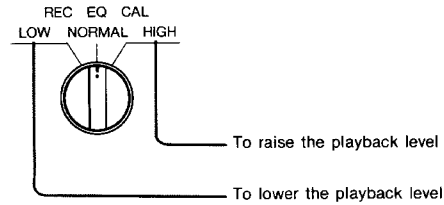
During Recording

To modify the recording characteristics, set the REC EQ CAL switch as follows:


REC EQ CAL
LOW NORMAL HIGH
To emphasize the higher frequencies in recordings
For normal recordings
To dampen the higher frequencies in recordings

During Bias Calibration

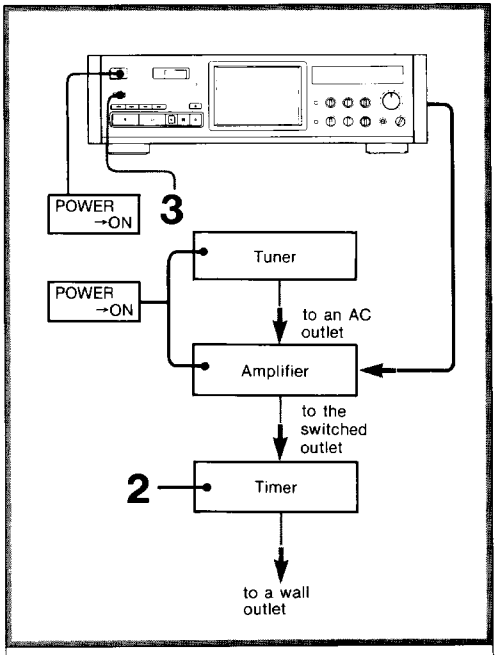
To verify changes in the playback level of the 8-KHz test tone level and the recording characteristics of the higher frequencies, set the REC EQ CAL switch as follows:



You may also use this switch in conjunction with the BIAS control to modify the high-frequency characteristics.

Timer-Activated Playback and Recording

By connecting an optional timer, recording or playback can be performed automatically at a preset time.



1 Insert a cassette and prepare the unit for playback or recording.

For playback	Follow steps 1 through 3 on page 6.
For recording	Follow steps 1 through 6 on page 9.

2 Set the timer to the desired time.
Power to the tape deck will be cut off.

3 Set the unit's TIMER switch to PLAY or REC.
Playback or recording will start at the preset time.

When the timer-activated operation is completed
Set the TIMER switch on the unit to OFF. If the TIMER switch is left at REC, the unit will automatically enter the recording mode the next time the power is turned on, and the previously recorded material may be erased.

Keep the POWER switch depressed on the unit
When the timer is set, the power to the unit will be cut off. However, you must leave the POWER switch depressed to start timer-activated operation.

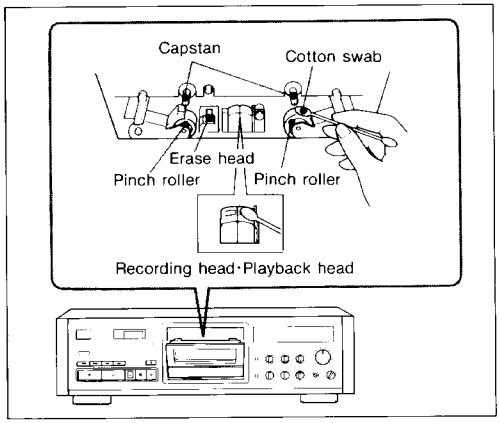
Maintenance

Cleaning the Heads and Tape Path

Clean all surfaces over which the tape travels after every 10 hours of operation. Otherwise, the following symptoms might appear.

- —low-quality sound
- —a decrease in sound level
- —excessive wow, flutter or dropout
- —incomplete erasure
- —recording cannot be made

To obtain high-quality recorded sound, cleaning before every recording is recommended.



1 Press ⏏ to open the cassette holder. Grasp the front of the holder on both sides and gently lift to remove it.

2 Wipe the heads, the pinch rollers and the capstans with a cotton swab slightly moistened with tape cleaning fluid or alcohol.

3 Replace the cassette holder.

After cleaning the heads and tape path, do not insert a cassette until the areas cleaned are completely dry.

Demagnetizing the Heads

After every 20 or 30 hours of use, or when you notice hiss and/or loss of high frequencies, the residual magnetism built up on the heads should be removed.

1 Turn off the power.

2 Demagnetize the heads with any commercially available demagnetizer.
Refer to the instruction manual of the demagnetizer for detailed instructions.

Cleaning the Cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution.

Important
Do not use any type of abrasive pad, scouring powder or solvents such as alcohol or benzine.

Specifications

Recording system	4-track 2-channel stereo
Bias	AC bias
Heads	Erase head × 1 (S & F head) Recording head × 1 (LA head) Playback head × 1 (LA head)
Motors	Capstan motor × 1 (Direct drive linear tolk BSL motor) Reel motor × 1 (DC motor)
Wow and flutter	0.024% WRMS (NAB)
Fast-forward and rewind time	Approx. 90 sec. (with C-60 cassette)

Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-ES)	15 – 22,000 Hz (±3 dB) 15 – 16,000 Hz (0VU recording)
TYPE II cassette (Sony UX-S)	15 – 20,000 Hz (±3 dB)
TYPE I cassette (Sony HF-S)	15 – 18,000 Hz (±3 dB)

Signal-to-noise ratio (NAB, at peak level)

Dolby NR switch / Cassette	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-ES)	61 dB	70 dB	76 dB
TYPE II (Sony UX-S)	59 dB	68 dB	74 dB
TYPE I (Sony HF-S)	57 dB	66 dB	72 dB

Total harmonic distortion
0.8% (with Sony METAL-ES cassette)

Inputs

Line inputs (phono jacks)	Sensitivity	77.5 mV (– 20 dB)
	Input impedance	50k ohms
CD DIRECT input	Input impedance	50k ohms

Outputs

Line outputs (phono jacks)	Rated output level	0.44 V (– 5 dB) at a load impedance 47k ohms
	Load impedance	Over 10k ohms
Headphones (stereo phone jack)	Output level	0 – 3 mW at a load impedance of 32 ohms

General

Power requirements	120 V AC, 60 Hz
Power consumption	31 W
Dimensions	Approx. 470 × 140 × 380 mm (w/h/d) (18⅝ × 5⅝ × 15 inches) including projecting parts and controls
Weight	Approx. 11.7 kg (25 lbs 13 oz)
Supplied accessory	Audio connecting cord (2) Screws (8)
Optional accessory	Wireless remote control unit RM-J701

Design and specifications subject to change without notice.

Troubleshooting Guide

The following trouble checks will help you correct the most common problems encountered with your tape deck. Should any problems persist after you have made these checks, consult your nearest Sony dealer. Before proceeding with these trouble checks, first check these basic points:

- The power cord is firmly connected.
- Amplifier connections are firmly made.
- Heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are set correctly.

Function buttons and tape transport problems

Symptom	Cause	Remedy
The function buttons do not activate.	Cassette holder is not fully closed.	Close the holder completely.
	Button pressed immediately after power was turned on.	Wait until blinking of ❚❚ indicator stops.
Playback or recording begins when the power is turned on.	The TIMER switch is not set to OFF.	Set the TIMER switch to OFF.
● button does not activate. (● indicator does not light up.)	Tab has been removed from the cassette.	Cover the hole with plastic tape (page 8).
Tape stops before being fully rewound.	Tape is slack.	Take up the tape slack.
	Cassette shell is deformed.	Use another cassette.
	The Memory function is activated.	Press the MEMORY button to deactivate the function.
Excessively loud tape transport noise during fast winding.	This depends on the cassette used and is not a problem.	—
The cassette holder will not close.	The power has been turned off while the cassette holder is open.	Turn the power on and close the cassette holder.

Recording and playback problems

Symptom	Cause	Remedy
Recording or playback cannot be made or there is a decrease in sound level.	Heads are either dirty or magnetized.	Clean or demagnetize the heads.
	Improper connection.	Make connections properly.
	Improper setting of the amplifier controls.	Set the amplifier controls to the appropriate positions.
Excessive wow, flutter or dropout.	Head, capstan or pinch roller is dirty.	Clean in accordance with instructions shown on page 14.
Incomplete erasure.	Erase head is dirty.	Clean the erase head.
Increased noise or poor reproduction in high frequencies.	Head is magnetized.	Demagnetize the head.
Unbalanced tone in high frequencies.	Improper setting of the DOLBY NR switch.	When playing back, set the switch to the same position used in recording.
	The unit is placed near a television set.	Move the unit away from the television set.
The desired selection cannot be located even though you activate the AMS.	There is noise in the space between selections. The space is less than 4 seconds long.	Rerecord the tape if you can, and insert a blank space of 4 seconds using the O button.
	The ▶▶| or |◀◀ button is pressed immediately before or after the beginning of the following selection.	—
Playback may begin in the middle of the selection when the AMS is activated.	The following will be treated as blanks: —a passage of low frequencies or very low volume —a gradual increase or decrease in volume.	Press the ▶▶ or ◀◀ button.

Noise

Symptom	Cause	Remedy
Hum noise.	The unit is stacked on or under the amplifier.	Separate the unit.
Noise is recorded.	Recording was made near equipment such as a television set or a color monitor, and interference has affected the recording on the tape and the Dolby NR system.	Move the unit away from the television set or color monitor.

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